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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	:	Examiner: A. T. Hoang
Asano TOSIYA	)	
	:	Group Art Unit: 2836
Application No.: 10/830,004	)	
	:	Confirmation No.: 7655
Filed: April 23, 2004	)	
	:	April 30, 2007
For: MAGNETIC GUIDING APPARATUS	)	(Monday)

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

REQUEST FOR RECONSIDERATION

Sir:

In response to the Final Office Action issued January 29, 2007, Applicant requests favorable reconsideration and allowance of the subject application in view of the following remarks.

Claims 1-13 are presented for consideration. Claims 1, 9, 12, and 13 are independent.

Claims 1-13 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S.

Patent No. 5,227,948 to Boon et al. in view of U.S. Patent Application Pub. No. 2002/0121615 to

Nakasuji, Korean Patent Pub. No. 2001-065114 to Ha et al., and U.S. Patent Application Pub. No. 2005/0229690 to Kikuchi et al. This rejection is respectfully traversed.

In one aspect of the invention, independent claim 1 recites a magnetic guiding apparatus for guiding a moving member along a length of a sliding member by attracting a target disposed along the length of the sliding member by electromagnets provided on the moving member. The apparatus comprises magnetic flux detection means on the guided moving member for detecting a magnetic flux along the length of the target during movement of the moving member along the length of the sliding member. Position measuring means is provided for measuring a position of the magnetic flux detection means on the guided moving member along the length of the sliding member. Detection means is further provided for detecting a position of the magnetic flux peak along the length of the target, based on output of the magnetic flux detection means and the position measuring means. Demagnetization means are still further provided for performing demagnetization of the detected position of the magnetic flux peak. In another aspect of the invention, independent claim 9 recites a stage apparatus with many of the features of the magnetic guiding apparatus of claim 1. In yet another aspect of the invention, independent claim 13 recites a magnetic guiding apparatus also with many of the features of the magnetic guiding apparatus of claim 1.

In a still further aspect of the invention, independent claim 12 recites a demagnetization method for performing demagnetization of a magnetic guiding apparatus, which has a moving member along a length of a target. The method includes the step of detecting a magnetic flux along the length of the target by a magnetic flux detecting means on the moving member during movement of the moving member along the length of the target. The method also includes the steps of measuring the position of the magnetic flux detecting means along the length of the

target, detecting a position of a magnetic flux peak along the length of the target based on measured position and detected magnetic flux, and performing demagnetization at the detected position of the magnetic flux peak.

The Examiner relies on the Boon et al. patent for teaching a magnetic guiding apparatus for guiding a moving member 5, 9, and 21 along the length of a sliding member 1 by attracting a target 1 disposed along the length of the sliding member by electromagnets 13, 15, 17, and 19 provided on the moving member. The Examiner acknowledges, however, that the Boon et al. patent does not disclose a magnetic flux detection means on the guided moving member for detecting a magnetic flux along the length of the target during movement of the moving member along the length of the sliding member. The Examiner also acknowledges that the Boon et al. patent does not teach a detection means for detecting a position of a magnetic flux peak along the length of the target, and that the Boon et al. patent does not teach a demagnetization means. The Examiner still further acknowledges the Boon et al. patent does not disclose a position measuring means for measuring a position along a length of the sliding member.

To compensate for the deficiencies in the Boon et al. patent with respect to the magnetic flux detection means and demagnetization means, the Examiner cites the Nakasuji patent. The Examiner asserts the Nakasuji patent discloses a magnetic field detection means 21 in the form of a search coil for detecting stray floating magnetic fields during the manufacture of microelectronic devices, and that the Nakasuji patent also discloses demagnetization means in the form of a magnetic field compensation coil 22, so as to prevent adverse effects of the floating magnetic fields. The Examiner concludes that it would have been obvious to one of ordinary skill in the art to use the combined coil taught by the Nakasuji patent in the electromagnets of the Boon et al. patent in order to provide a means on the guided moving member for detecting a

magnetic flux of the target during movement of the moving member along the length of the sliding member and perform demagnetization in the location of the magnetic flux so as to prevent adverse effects of such fluxes in the system.

Applicant respectfully submits, however, that the search coil and magnetic field compensation coil is taught by the Nakasuji patent for a purpose relating to that apparatus, which is not in any way found in the apparatus of the Boon et al. patent, and, as such, one of ordinary skill in the art would not look to provide the Boon et al. patent with such a coil and magnetic field compensation coil system. The Nakasuji patent uses the search coil and magnetic field compensation coil system for the purpose of preventing external magnetic fields from penetrating into a charged particle beam optical system. See, e.g., Nakasuji, paragraph [0031]. The Nakasuji patent says nothing about using the search coil and magnetic field compensation coil system for anything analogous to a magnetic guiding apparatus with a moving member and sliding member, as in the apparatus of the Boon et al. patent. In other words, the Nakasuji patent does not in any way teach or suggest using the search coil and magnetic field compensation coil system for detecting and demagnetizing of a localized magnetic field in a moving member and sliding member combination. Given that the purpose of the search coils and magnetic field compensation coil systems of the Nakasuji patent is not for anything analogous for dealing with magnetic fields along a moving member and guiding member combination, and given that the Boon et al. patent itself says nothing of the problem magnetic flux along the length of the sliding member, Applicant respectfully submits the combination of citations provides no suggestion or motivation for one of ordinary skill in the art to incorporate the search coil and magnetic field compensation coil system of the Nakasuji patent into the apparatus of the Boon et al. patent. Thus, Applicant respectfully submits the modification of the Boon et al. patent with the teachings

of the Nakasujii patent can only be based on impermissible hindsight of the present application, and, therefore, it is improper to form a rejection under 35 U.S.C. § 103 based on the proposed combination.

Applicant further respectfully submits the Ha et al. document does not compensate for the deficiencies in the proposed combination of the Boon et al. patent and the Nakasujii patent with respect to the magnetic flux detection means and demagnetization means. Applicant also respectfully submits the Ha et al. publication does not cure the acknowledged deficiency in the Boon et al. patent with respect to a position measuring means.

The Examiner cites the Ha et al. publication as teaching a magnetic guiding apparatus for guiding a moving member 1 along a length of a sliding member in order to perform demagnetization of a semiconductor package. The Examiner finds the apparatus of the Ha et al. publication would necessarily have a position measuring means for measuring a position on the guided moving member along the length of the sliding member. The Examiner, therefore, asserts it would have been obvious to one of ordinary skill in the art to include a position measuring means for measuring a position on the guided moving member along the length of the sliding member, as allegedly taught by the Ha et al. publication, in the asserted combination of the Boon et al. patent and the Nakasujii patent, in order to provide an improved means of positioning the demagnetization means relative to a portion needing demagnetization.

Applicant respectfully submits, however, the Ha et al. publication is directed to a completely different, and non-analogous art, than the Boon et al. patent. The Ha et al. publication is related to the demagnetizing manufacturing process of a semiconductor package, which is not in any way related to a magnetic guiding apparatus, such as that disclosed in the Boon et al. patent. Moreover, in Applicant's view, the Ha et al. publication operates to move the

semiconductor position in order to detect a magnetic field in the semiconductor package. See, e.g., Ha et al., Abstract. Thus, contrary to the assertion of the Office Action, Applicant submits there is nothing in the Ha et al. publication indicating the necessity of a position measuring means. Accordingly, Applicant submits that the Ha et al. publication is non-analogous art to the Boon et al. patent, the Ha et al. publication fails to compensate for the deficiencies in the combination of the Boon et al. patent and the Nakasuji patent with respect to the teaching of a detection means for detecting a position of a magnetic flux peak along the length of the target, and further does not teach or suggest a position measuring means.

Applicant still further respectfully submits the Kikuchi et al. publication does not compensate for the deficiencies in the combination of the Boon et al. patent with the Nakasuji patent and the Ha et al. publication. The Examiner cites the Kikuchi et al. publication for teaching the general principal that a large magnetic field occurs in conjunction with a magnetic flux peak. Applicant submits, however, the Kikuchi et al. publication neither teaches nor suggests anything related to a detection means for detecting a position of a magnetic flux peak along the length of the target, nor a position measuring means, which the Boon et al. patent, the Nakasuji patent, and the Ha et al. publication lack, as described above.

In sum, Applicant respectfully submits the combination of the Boon et al. patent with the Nakasuji patent, Ha et al. publication, and the Kikuchi et al. publication fails to teach or suggest many salient features of Applicant's present invention recited in independent claims 1, 9, 12 and 13, including a magnetic flux detection means or magnetic flux detection step, a detection means or detection step, a demagnetization means or demagnetization step, and a position measuring means or position measuring step. Applicant submits, therefore, that the present invention, as

recited in independent claims 1, 9, 12, and 13, is patentably defined over the cited art, whether the art is taken individually or in combination.

Dependent claims 2-8, 10, and 11 also should be deemed allowable, in their own right, for defining other patentable features of the present invention in addition to those recited in their respective independent claims. Further individual consideration of these dependent claims is requested.

Favorable reconsideration, withdrawal of the rejections set forth in the above-noted Office Action and an early Notice of Allowance are also requested.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should be directed to our address listed below.

Respectfully submitted,

/Donald H. Heckenberg, Jr./

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